UNDERGRADUATE EDUCATION

# MECHANICAL ENGINEERING AND AEROSPACE ENGINEERING


THE OHIO STATE UNIVERSITY
COLLEGE OF ENGINEERING

DEPARTMENT OF MECHANICAL AND
AEROSPACE ENGINEERING

[THE HOME OF MECHANICAL, AEROSPACE AND NUCLEAR ENGINEERING]

## DEPARTMENT HIGHLIGHTS

The Department of Mechanical and Aerospace Engineering endeavors to educate high-achieving professionals in mechanical, aerospace and nuclear engineering. Accredited by the Accreditation Board for Engineering and Technology (ABET), the department's undergraduate academic majors are mechanical engineering and aerospace engineering. A minor in nuclear engineering is also housed in the department.

*U.S. News & World Report* consistently ranks the mechanical and aeronautical and astronautical engineering undergraduate programs among the top in the nation. A mix of practical theory and applied experience is at the heart of the department's undergraduate education. Team-building, creativity and critical thinking skills are emphasized, giving students an advantage in the job market.

Experiential learning, a distinguishing feature of the department, allows students to learn through doing. In addition to interactive laboratory and classroom experiences, culminating capstone projects take students from design to prototype testing. Dozens of student organizations and project teams offer the opportunity for student involvement.

Interdisciplinary synergy is encouraged in the College of Engineering. There are ample opportunities for collaboration across departments and beyond, whether through projects, research or student employment.

## FACILITIES

The department's $72.5 million building complex, the Peter L. and Clara M. Scott Laboratory, opened in 2006 and includes 14 modern classrooms and high-quality space for research laboratories. Additionally, an electronics and computer laboratories offer working space and advanced software, while four machine shops and dedicated staff support research and student projects.

## ACADEMIC PROGRAMS

All engineering students at Ohio State begin their studies with math, chemistry, physics and a course sequence on the fundamentals of engineering. After completion, admitted students begin their major studies. More information about department curricula, including sample schedules, can be found at **mae.osu.edu/undergraduate**.

*Mechanical engineering program*

Mechanical systems can vary greatly in complexity and magnitude, from the valve in an artificial heart to a car engine. Mechanical engineering addresses all aspects of the conversion of thermal energy into useful work and the machines that make it possible.

Students enrolled in mechanical engineering may choose to take specialized courses throughout the curriculum or maintain a broader course of study. Specialized topic areas include: applied mechanics; automotive engineering; biomechanical systems; design and manufacturing; dynamics, vibrations and controls; energy systems; and nuclear engineering.

12,000+ MAE ALUMNI

Ohio State's broad mechanical engineering curriculum exposes students to the technologies, facilities and instruction that help jumpstart their careers.

*Aeronautical and astronautical engineering program*

Aerospace engineering is dynamic and addresses the needs of commercial and military systems. Comprehensive laboratories and extensive computing facilities focus instruction on the challenges of terrestrial and space flight.

Ohio State's aeronautical and astronautical program provides students with a broad range of knowledge, while technical electives allow for studies to be specialized, if desired. Technical electives include fluid mechanics; propulsion; aircraft flight testing; helicopter aerodynamics; control theory (air-breathing and rocket); turbomachinery; structural dynamics; aeroelasticity; stability and control of flight vehicles; orbital mechanics; and hypersonics.

The unique combination of a large university, distinguished faculty and small class sizes allows the program to foster learning in a close-knit atmosphere and world-class setting.

## WHY OHIO STATE?

For 148 years, The Ohio State University's campus in Columbus has been the stage for academic achievement and a laboratory for innovation. It's where friendships are forged. It's where rivalries and revelry are born.

The university's main campus is one of America's largest and most comprehensive. Students at Ohio's best and one of the nation's top-20 public universities have myriad opportunities to learn, grow and get involved. Learn more about life on campus and in Columbus at **visit.osu.edu**.



## EXPERIENTIAL LEARNING

Experiential learning is one of the distinguishing traits of the Department of Mechanical and Aerospace Engineering. It is the goal that students graduate being equipped with not only technical knowledge, but also the interpersonal and professional skills needed to succeed in the modern engineering field.

*Capstone projects*

Each undergraduate student dedicates two semesters to developing, prototyping and testing a project through a formal group design experience. This primary culminating project reinforces technical skills, while further developing proficiency in teamwork and introducing project management components. Students in each major choose from various tracks in which to complete their projects. Collaboration with industry and other organizations is common, and presents possibilities for finished projects to be implemented.

*Interactive classes*

Coursework rooted in foundational research and combined with thought-provoking experimental work advantages the learning process during students' undergraduate education. With access to research experts and clinical faculty dedicated to excellence in teaching, students can expect to develop a well-rounded skill set that can take them to careers in industry or prepare them for continuing their academic pursuits.

*Internships and co-ops*

Knowledge gained in an authentic engineering work environment builds career confidence and demonstrates real commitment to future employers. In addition to boosting job readiness, many students are able to further reduce education expenses through income received while working as interns or on co-op assignments. Ohio State's Engineering Co-Op & Internship Program is a great resource for students. In fact, two out of every three Ohio State engineering students participate in a co-op or internship experience.

*Student organizations and project teams*

Students put their engineering skills to the ultimate tests by voluntarily challenging themselves to achieve faster, stronger and better. Participants apply research and classroom concepts to design, fabricate, manage and compete with projects. Many teams are multidisciplinary, contributing to further opportunity for collaboration. By pushing themselves to the limit, teammates gain knowledge and experience in practical application of their engineering education.

## RESEARCH IN ACTION

At Ohio State, undergraduate students have the opportunity to participate in world-class research. Formal projects are available through the Honors Program, where students can write and defend an undergraduate honors thesis under the guidance of a faculty member while earning degree credit. Informal research projects may be undertaken without the requirement of a thesis.


## THINKING OF GRADUATE SCHOOL?

The BS to MS Program is geared toward qualified students who wish to continue post-baccalaureate academic pursuits. In this program select courses taken during a student's final year of the bachelor's degree can be used to fulfill requirements for both the bachelor's and master's degrees, potentially reducing the amount of time needed to earn a master's degree by nearly one year.

## SCHEDULE A VISIT!

The best way to see if the mechanical and aeronautical and astronautical engineering undergraduate programs are right for you is to visit!

Visits can be scheduled online via **campusvisit.osu.edu**, or through the College of Engineering Recruitment office by emailing **eng-recruitment@osu.edu**.

Contact a department advisor at **614-292-0515** or **maeadvisor@osu.edu**.

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